

Recent NCP EoR observations

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+EoR/RO members

Summary

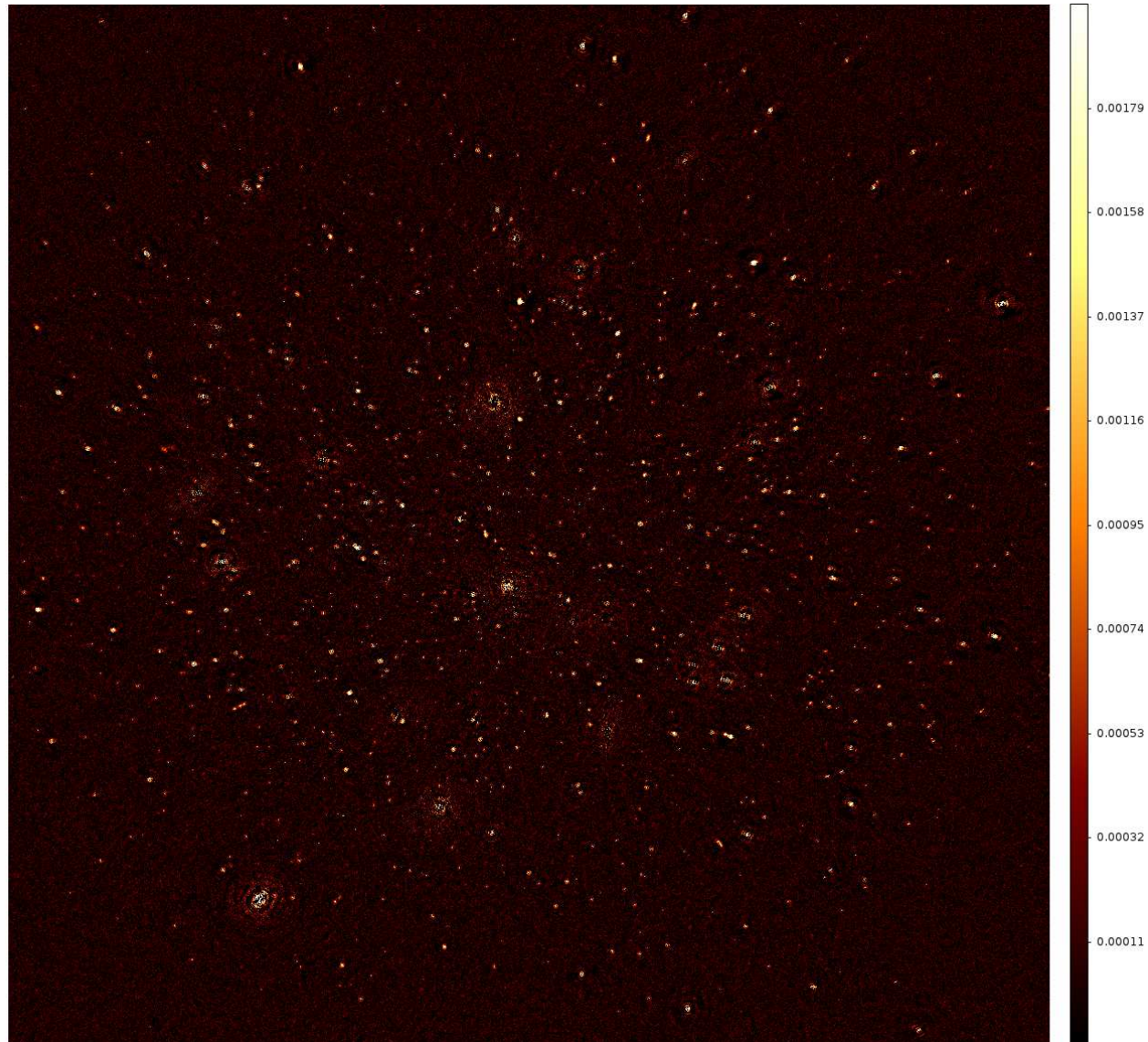
Id	Highlights
L62990	125-175 MHz, 124 SB, Full RS (no taper)
L69538	115-185 MHz, 244 SB, Tapered RS (similar CS and RS beams)
L69537	115-185 MHz, 244 SB, Tapered RS, New firmware

Processing time (244 SB, 32 compute nodes + 8 cores + 2 GPUs):

- ☐ NDPP+aoflagger+BBS, 64 channels → 3 channels, 2 s (30 hours)
- ☐ NDPP+SAGECal 150 directions, 3 channels → 1 channel, 10 s (38 hours)
- ☐ casapy imaging 2'' 12500×12500 pixels, uniform weights (8 hours)

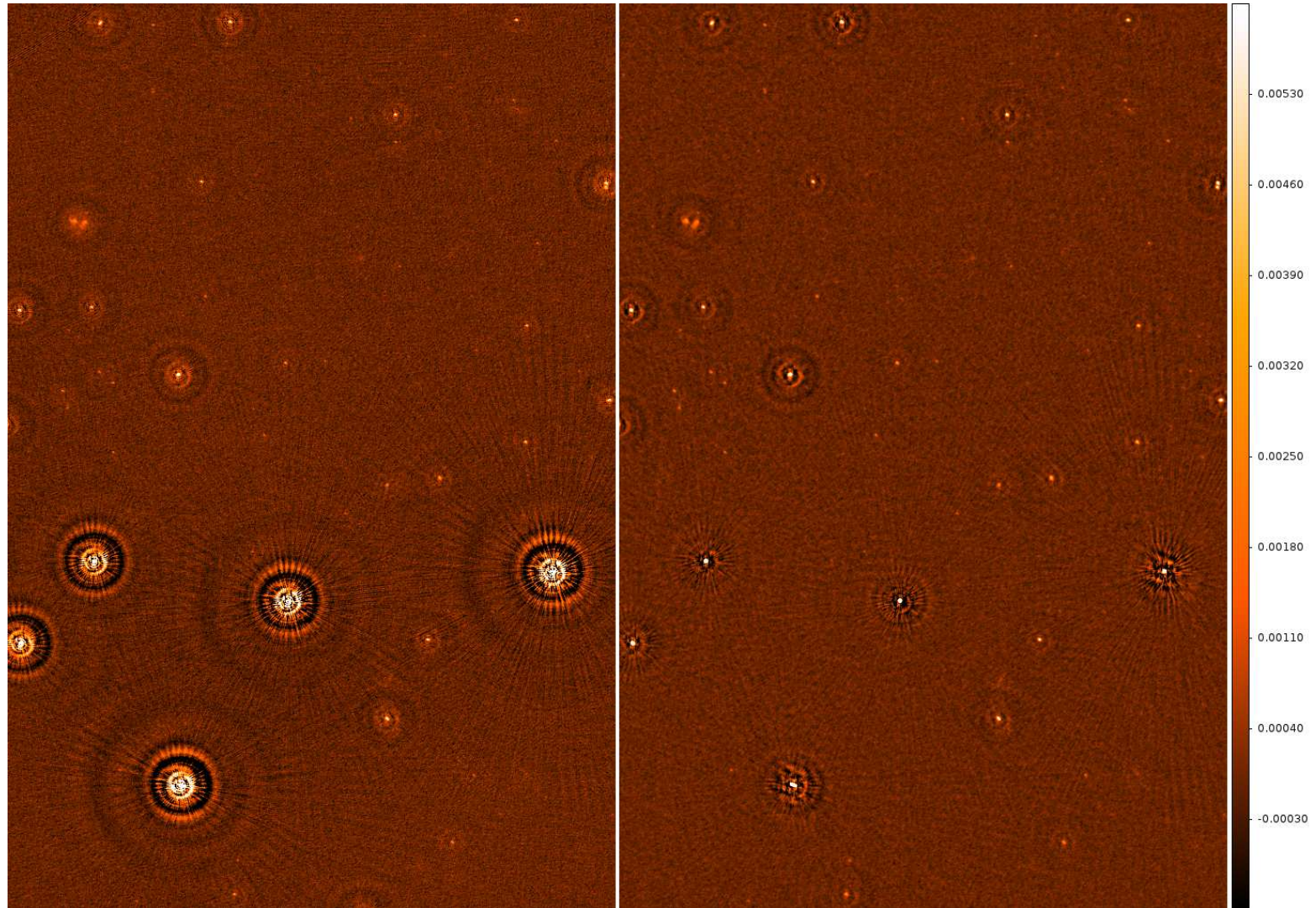
Noise: about 1.5 from the theoretical limit with good data. Better sky model (more sources) will get this down further.

FOV with tapered RS



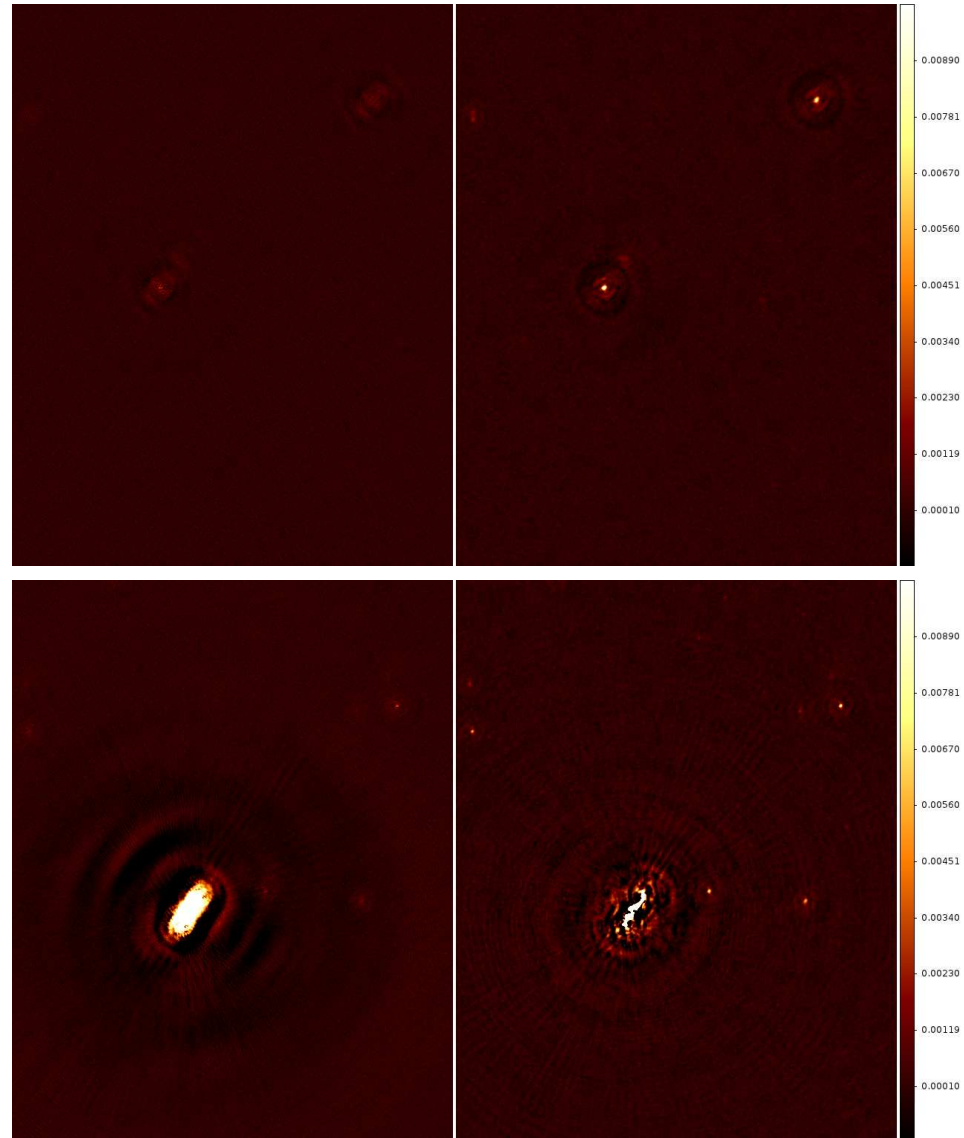
15000×15000 pixels 2'', 8×8 degrees, 140 μ Jy noise

Ionosphere/Beam Effects



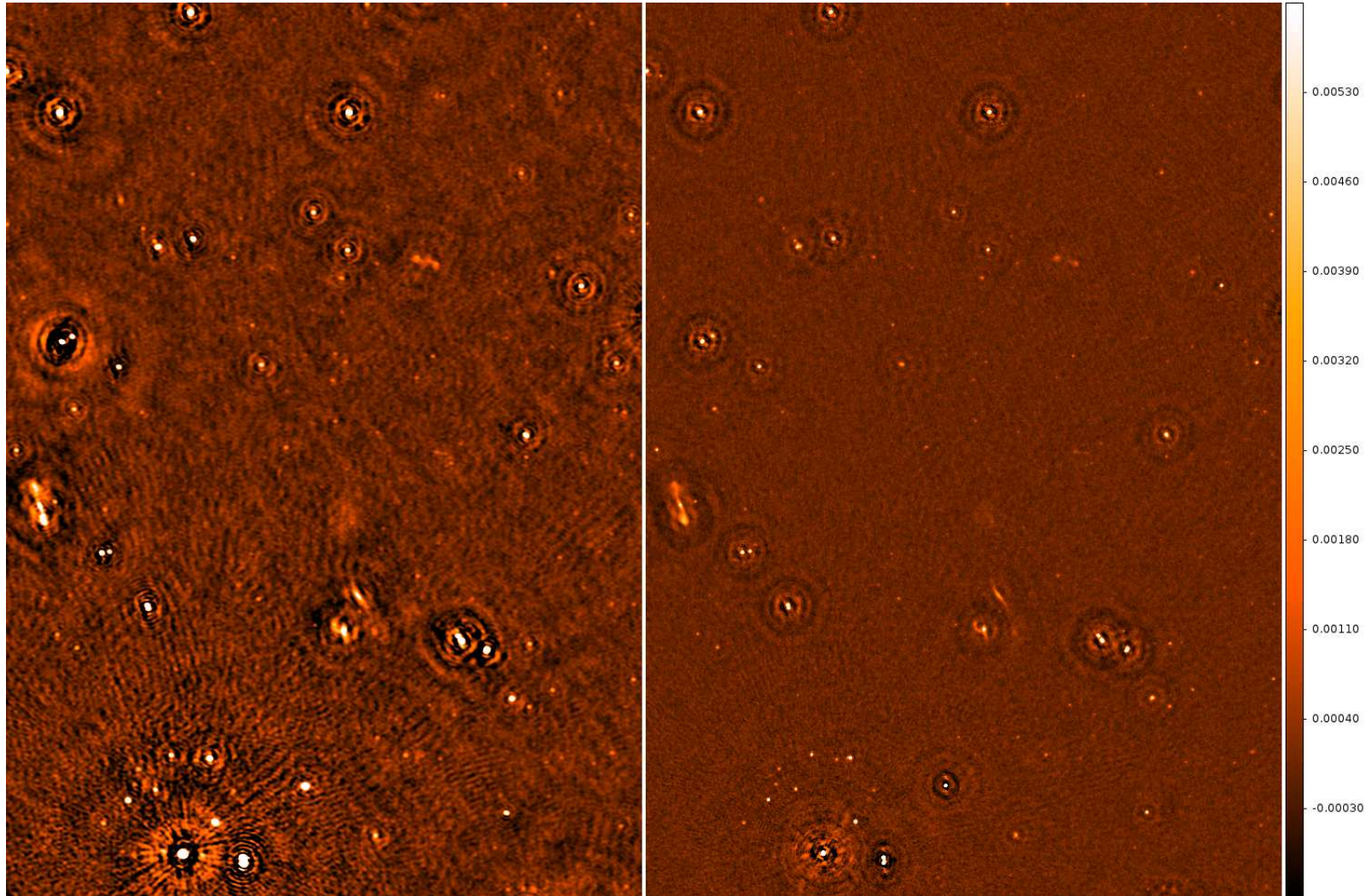
(left) before (right) after SAGECal

Better Looking Outlier Sources



(left) full RS (right) tapered RS: outlier sources look much better

Increased Resolution



NCP (left) 4'' pixels, 30 km max baseline (right) 2'' pixels, 80 km max baseline, PSF $\approx 12'' \rightarrow \approx 6''$

Noise

